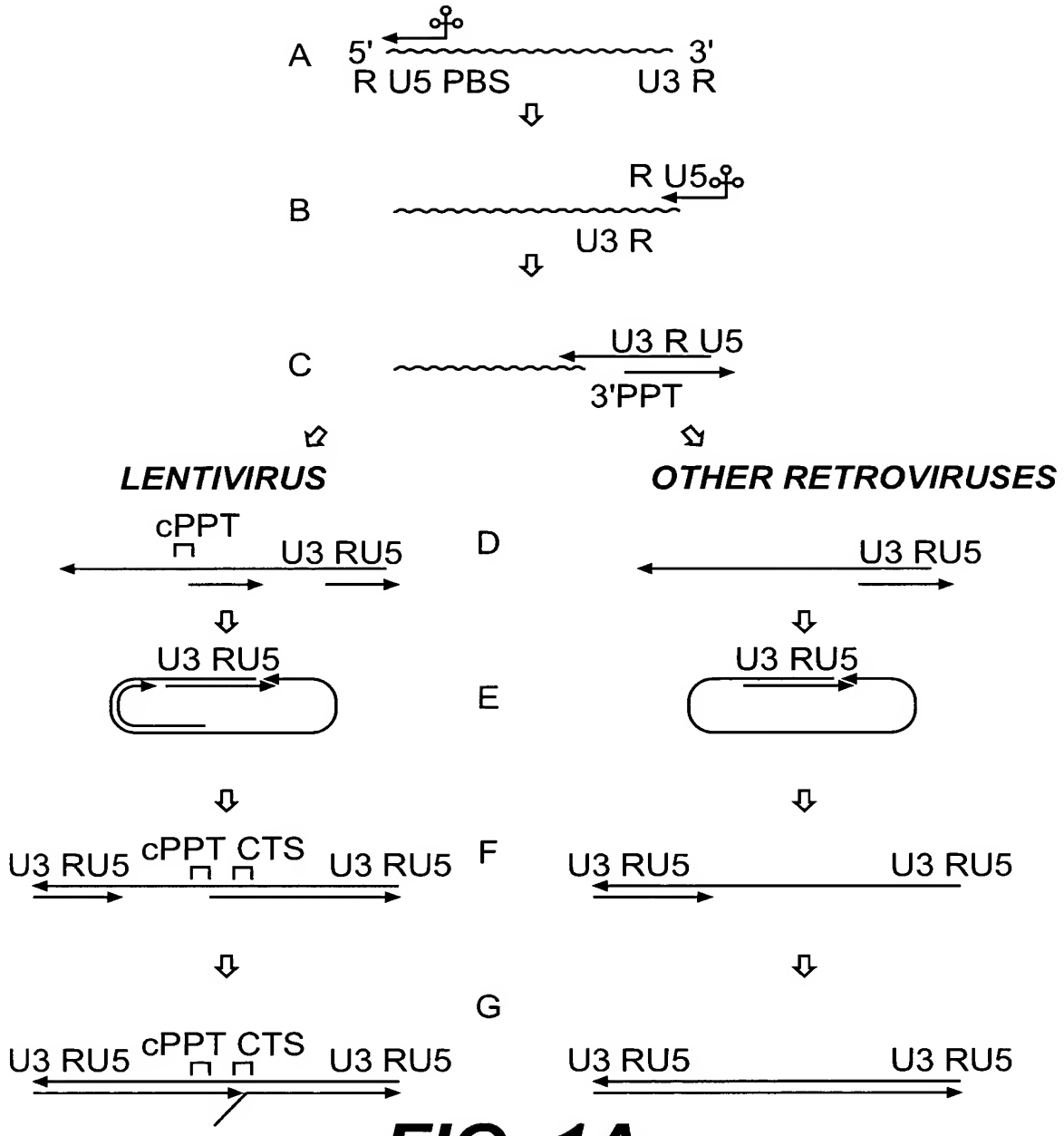
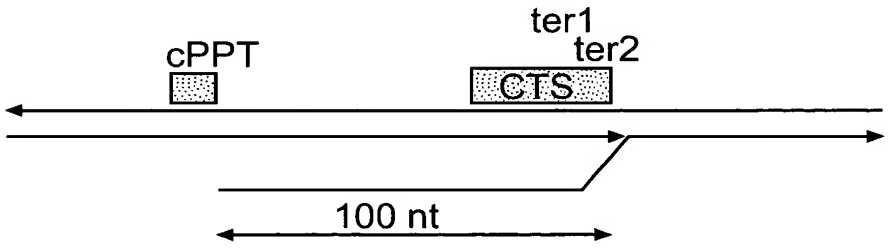
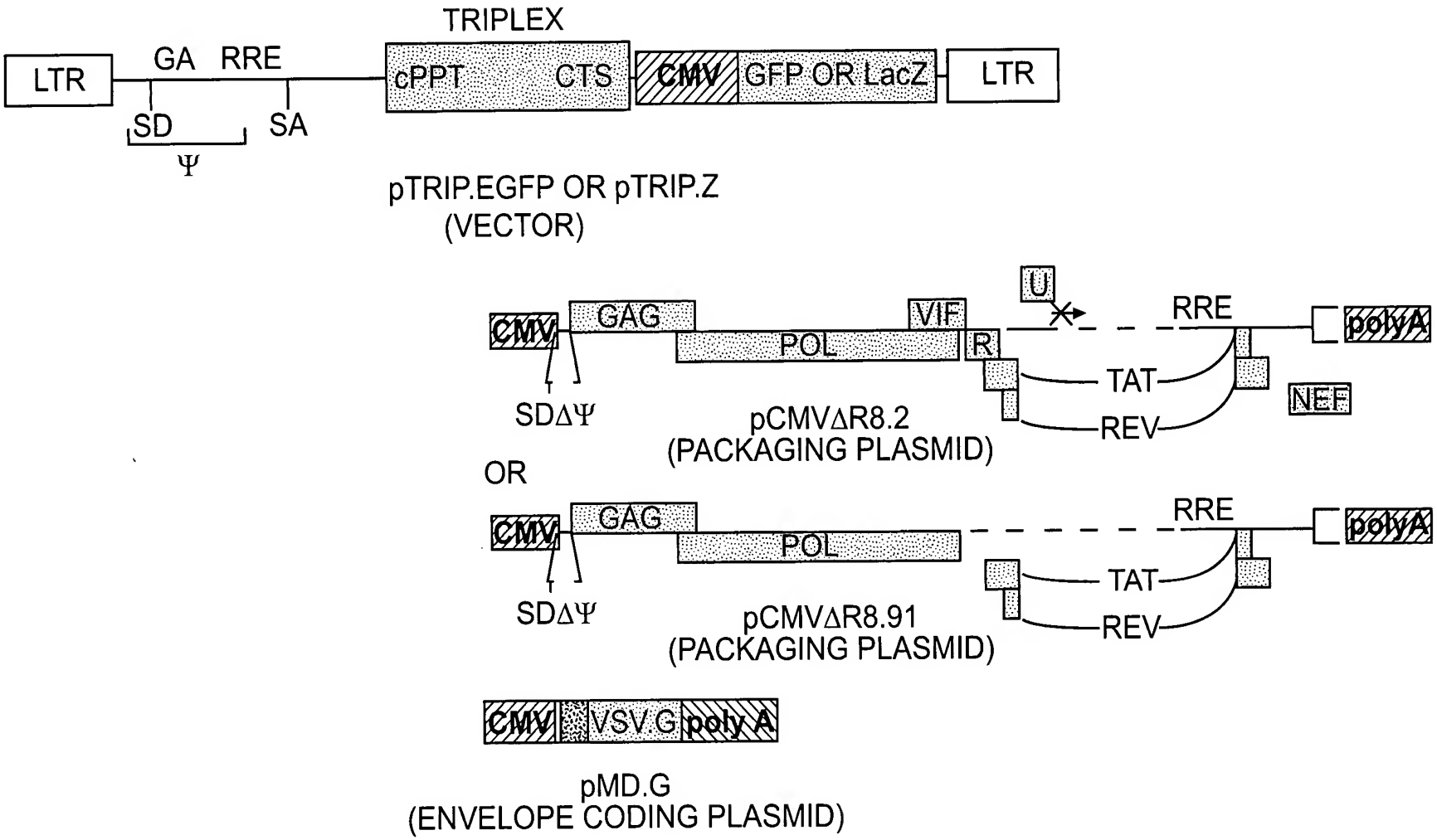


FIG. 1A



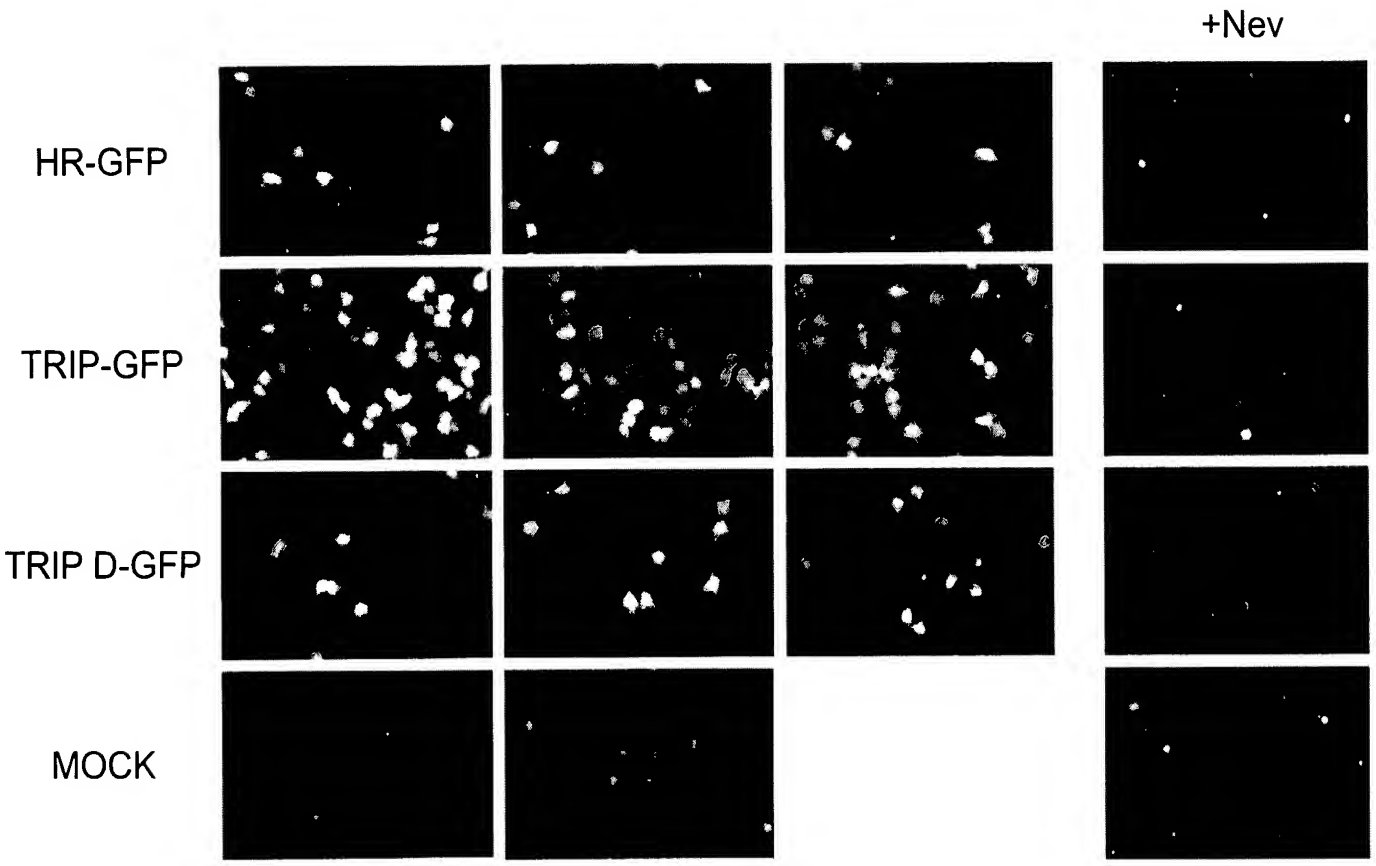
REVERSE TRANSCRIPTION OF LENTIVIRUSES,
FORMATION OF CENTRAL DNA TRIPLEX

FIG. 1B



PLASMIDS USED FOR THE PRODUCTION OF HIV VECTOR PARTICLES

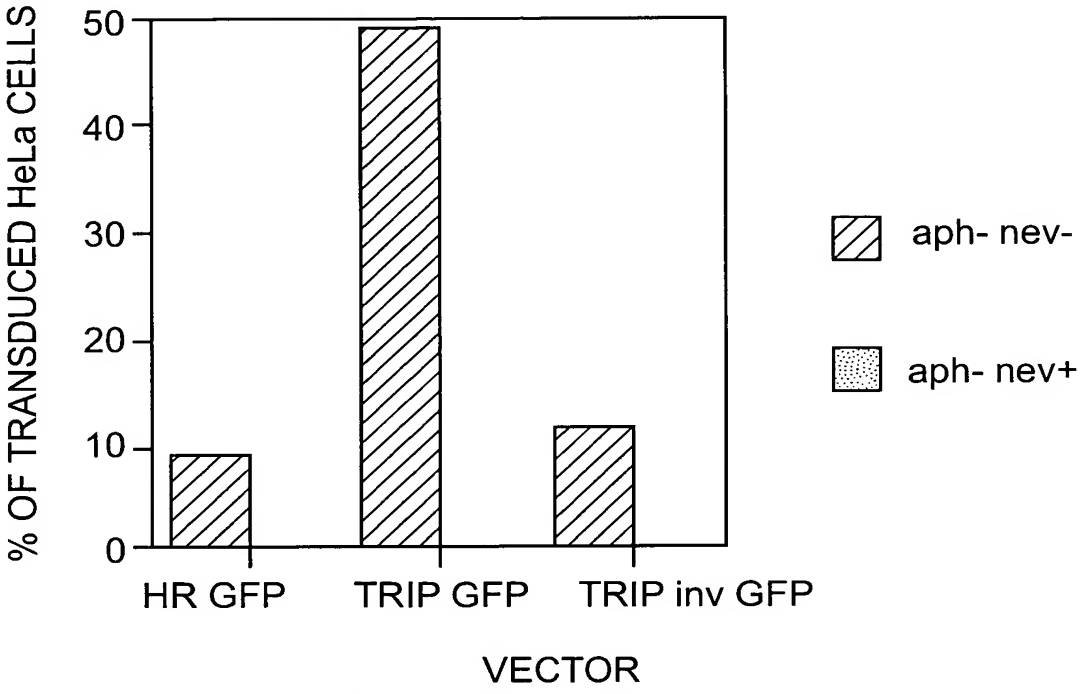
FIG. 2



IMPACT OF TRIPLEX ON EGFP TRANSDUCTION IN HeLa CELLS

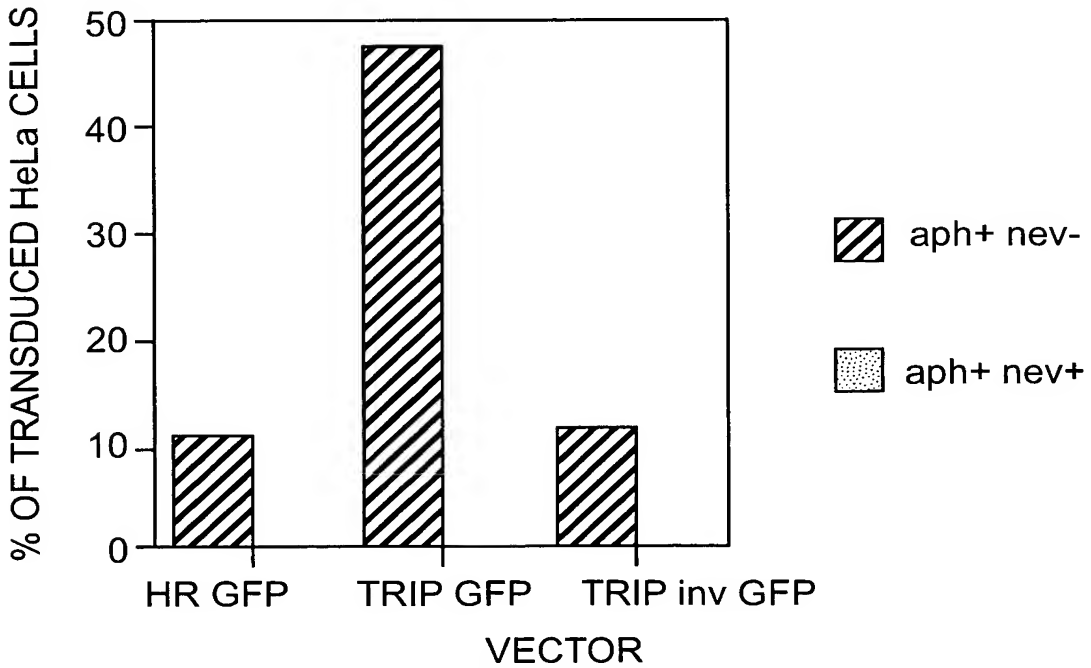
FIG. 3

QUANTIFICATION OF DEGREE OF TRANSDUCTION OF EGFP GENE BY HIV VECTORS WITH OR WITHOUT TRIPLEX



TRANSDUCTION OF GFP IN MITOTIC HeLa CELLS

FIG. 4A



TRANSDUCTION OF GFP IN BLOCKED HeLa CELLS

FIG. 4B

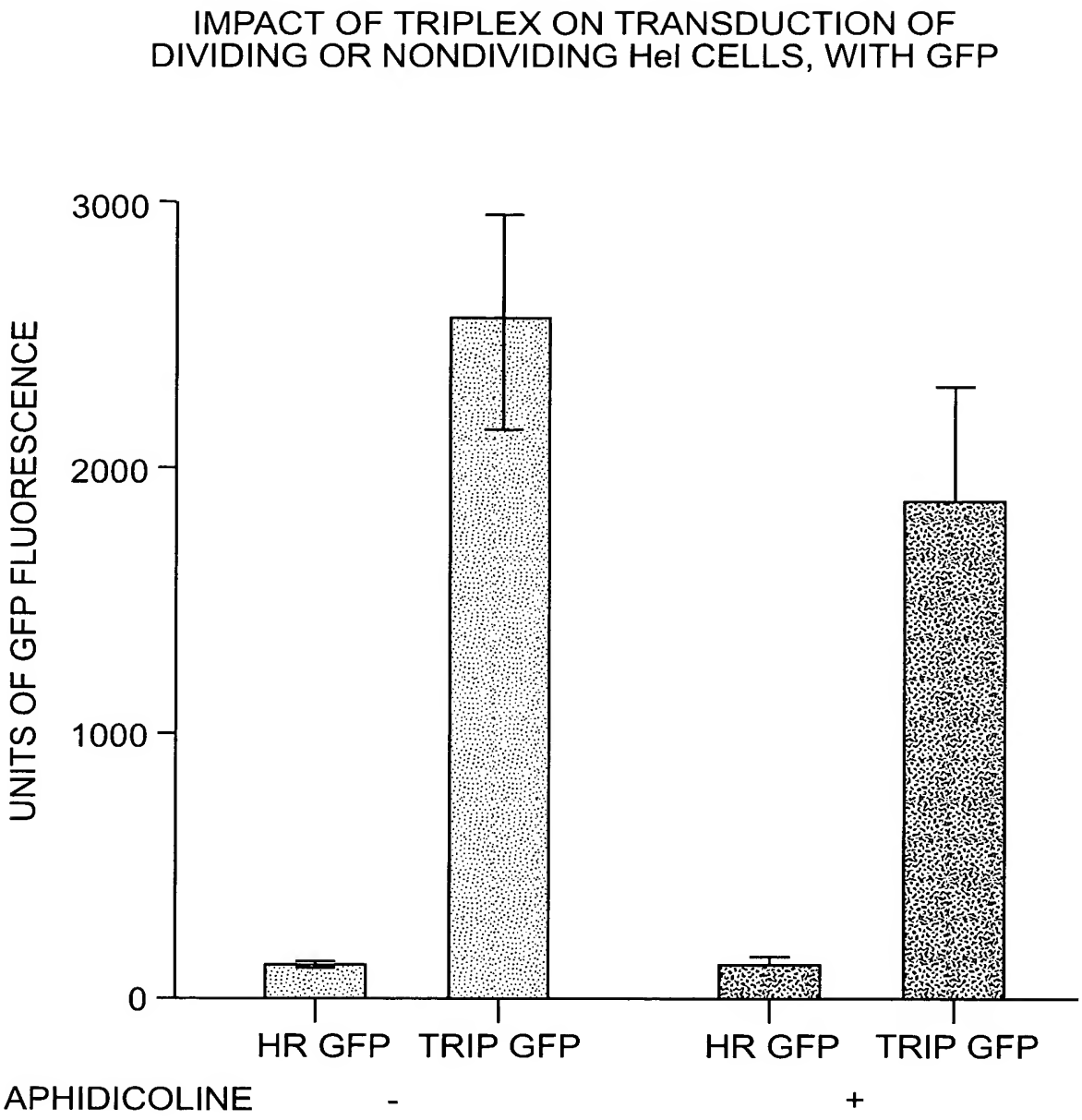
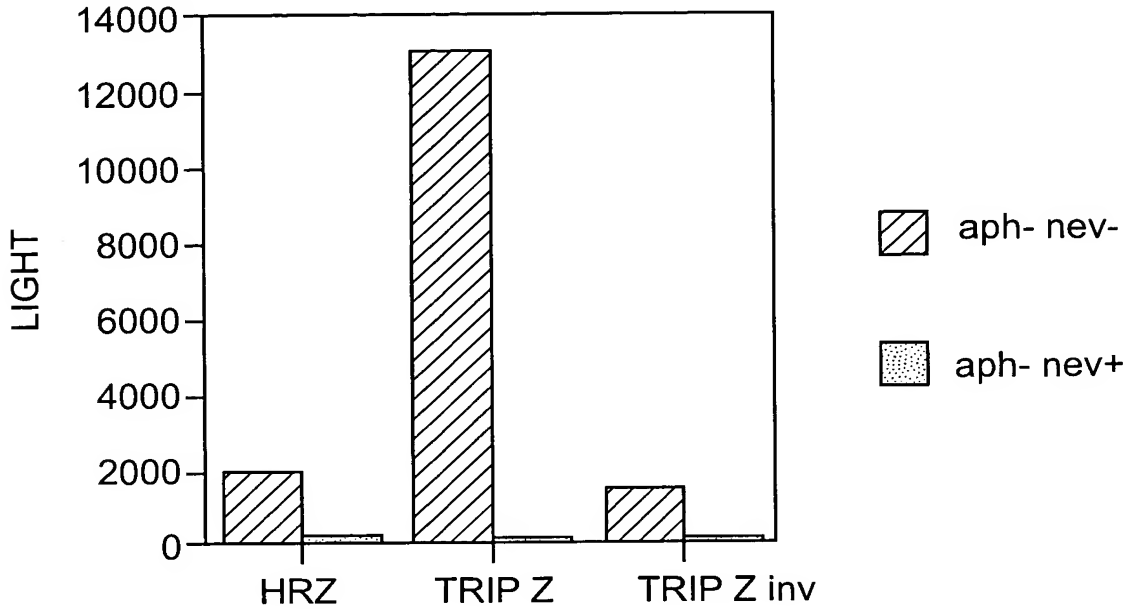

IMPACT OF TRIPLEX ON TRANSDUCTION OF
DIVIDING OR NONDIVIDING Hel CELLS, WITH GFP
UNITS OF GFP FLUORESCENCE
3000
2000
1000
0
HR GFP
TRIP GFP
HR GFP
TRIP GFP
APHIDICOLINE
-
+

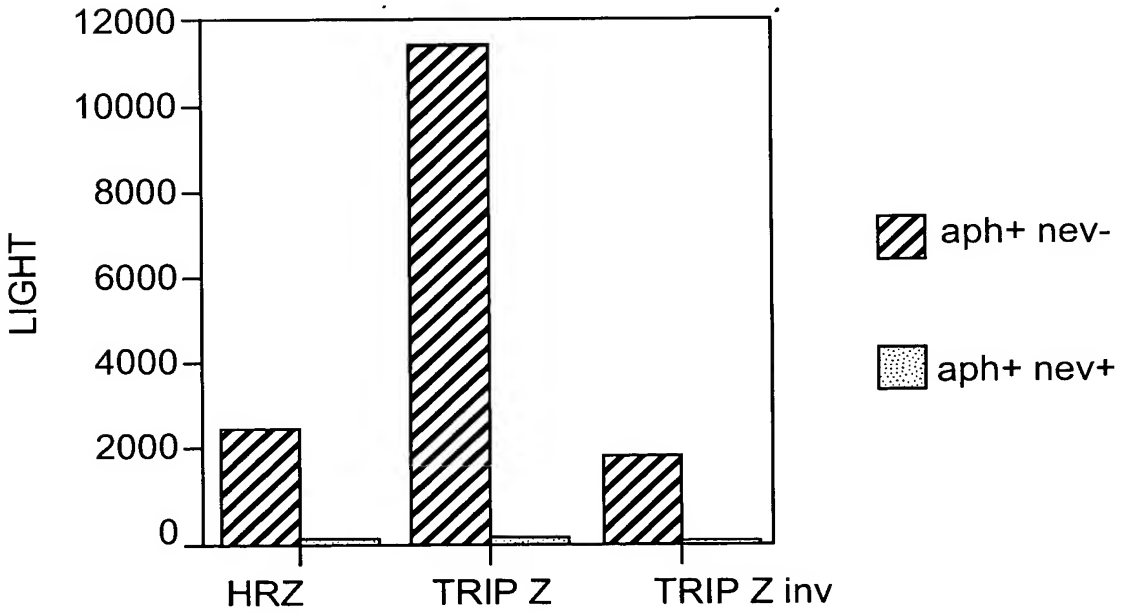
FIG. 4C

QUANTIFICATION OF DEGREE OF TRANSDUCTION OF LacZ GENE BY HIV VECTORS WITH OR WITHOUT TRIPLEX



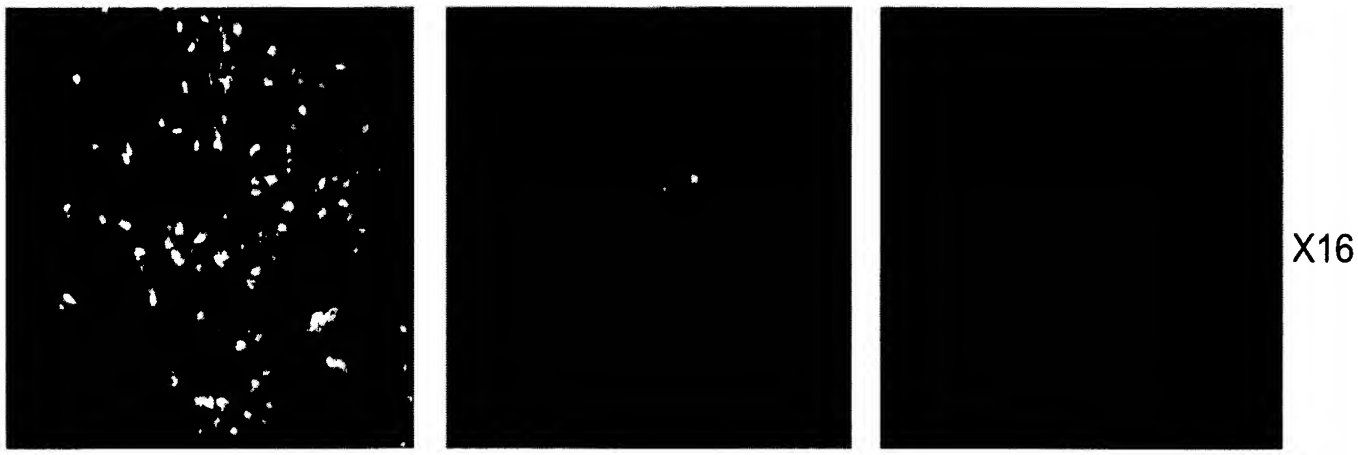
TRANSDUCTION OF βGAL IN MITOTIC HeLa CELLS

FIG. 5A



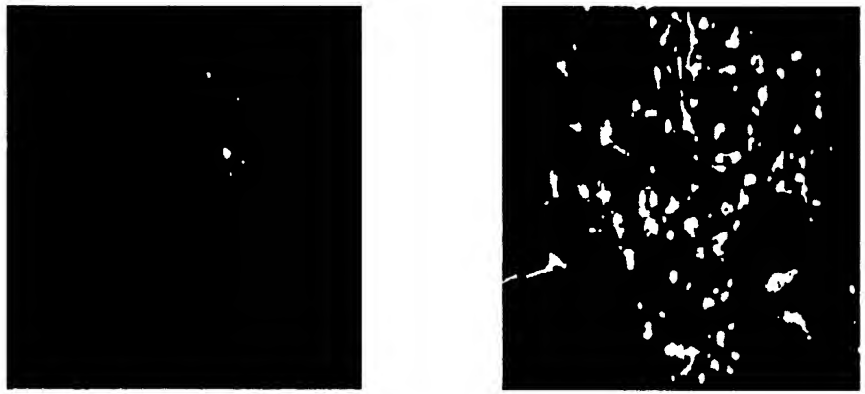
TRANSDUCTION OF βGAL IN NON MITOTIC HeLa CELLS

FIG. 5B



IMPACT OF CENTRAL TRIPLEX ON TRANSDUCTION OF GFP GENE IN RAT PRIMARY SPINAL CELLS

FIG. 6A

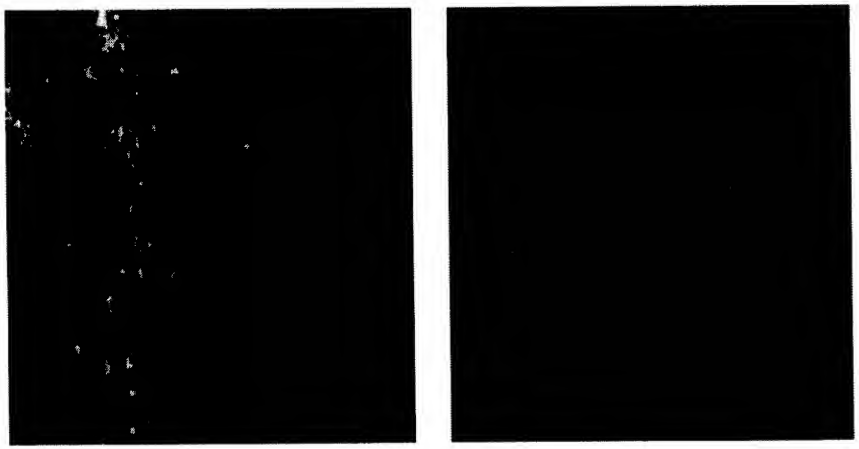


HR GFP

TRIP GFP

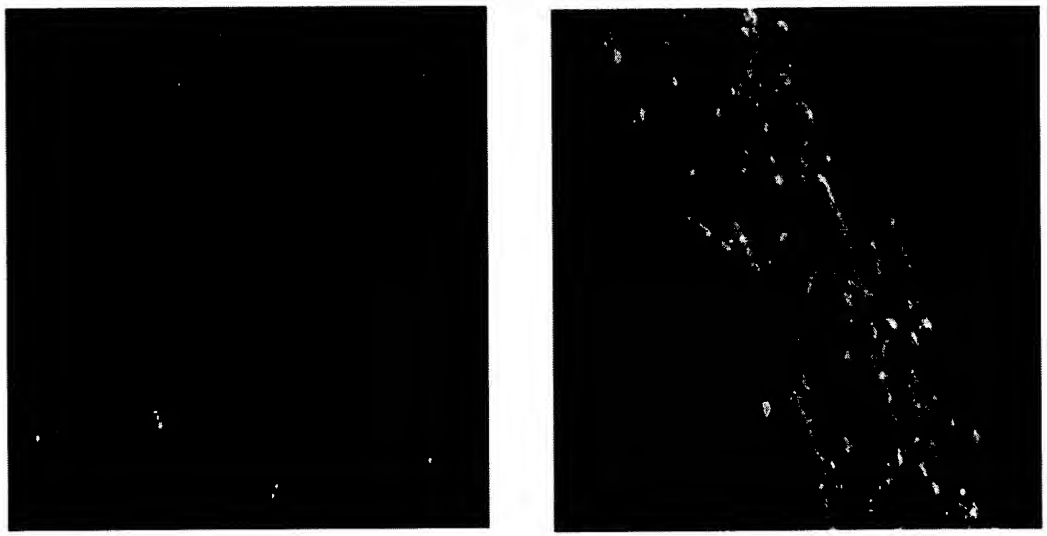
IMPACT OF CENTRAL TRIPLEX ON TRANSDUCTION OF GFP GENE IN RAT PRIMARY SPINAL CELLS

FIG. 6B



IMPACT OF TRIPLEX ON IN VIVO TRANSDUCTION OF
EGFP GENE IN RAT BRAIN: TRANSDUCTION AT INJECTION SITE

FIG. 7A.1



HR GFP

A

TRIP GFP

B

IMPACT OF TRIPLEX ON IN VIVO TRANSDUCTION OF GFP GENE IN RAT BRAIN

FIG. 7A.2

IMPACT OF TRIPLEX ON TRANSDUCTION OF LUCIFERASE ACTIVITY IN HeLa CELLS IN VITRO

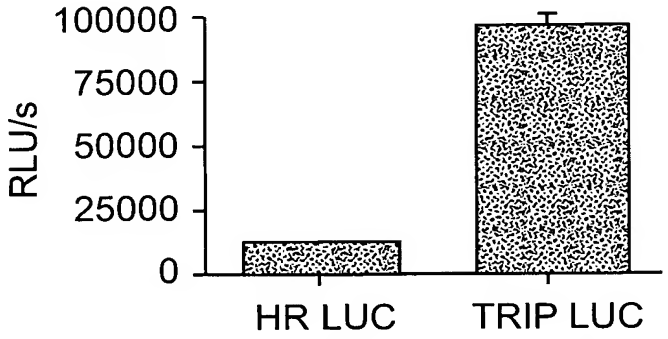


FIG. 7B.1

IMPACT OF TRIPLEX ON TRANSDUCTION OF LUCIFERASE ACTIVITY IN RAT BRAIN IN VIVO

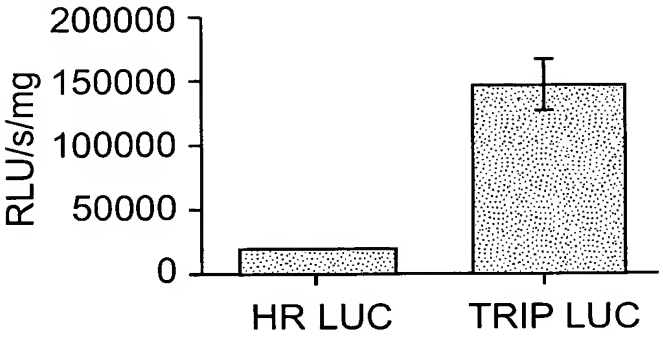


FIG. 7B.2

IMPACT OF TRIPLEX ON TRANSDUCTION OF LUCIFERASE ACTIVITY IN MOUSE BRAIN CELLS IN VIVO

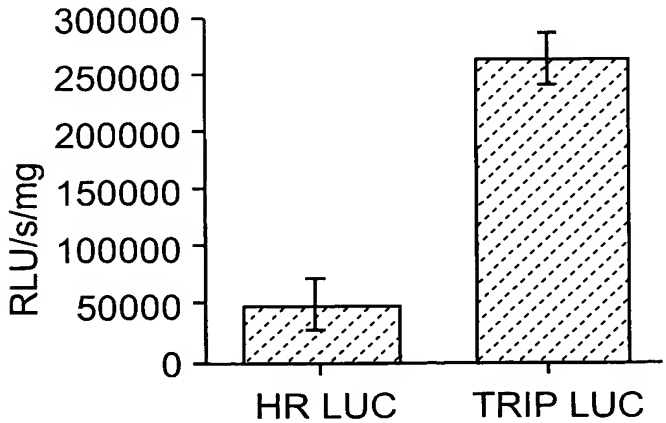
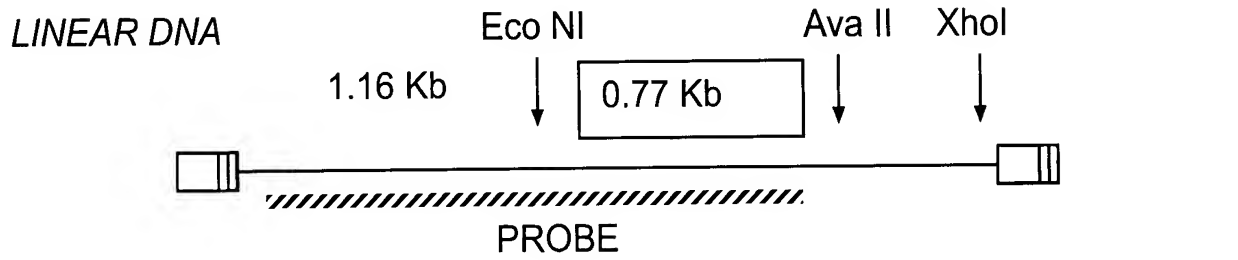


FIG. 7B.3

METHOD FOR QUANTITATIVE ANALYSIS OF MATURATION OF VECTOR DNA

A) SOUTHERN BLOT STRATEGY



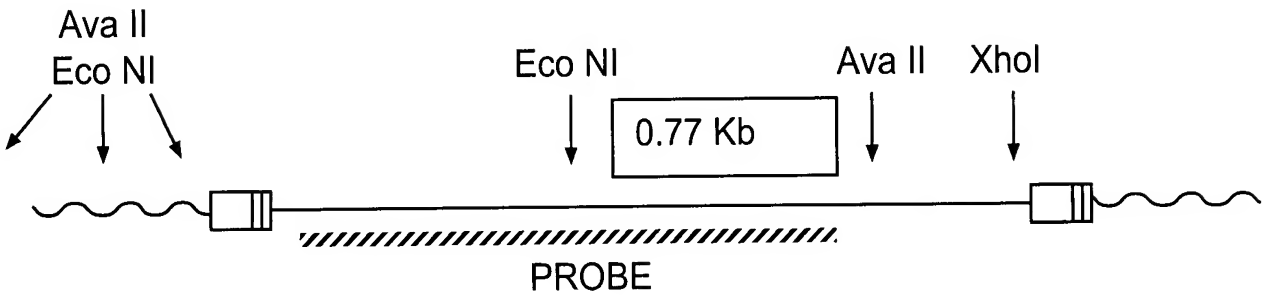
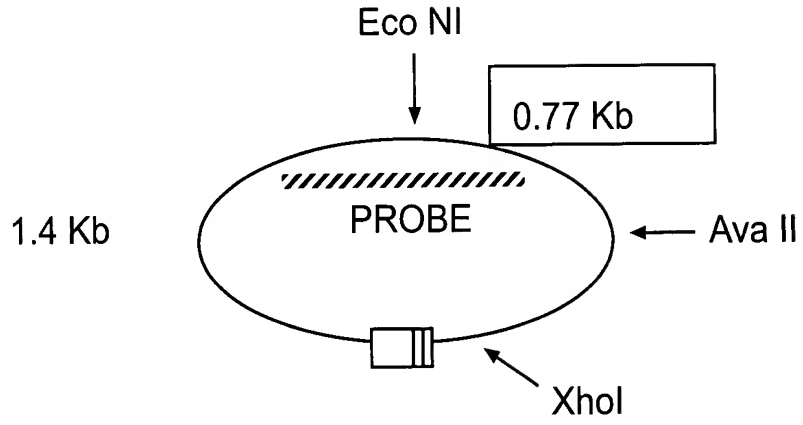


FIG. 8A

NON INTEGRATED DNA CIRCLES



B) QUANTIFICATION BY PHOSPHORIMAGE

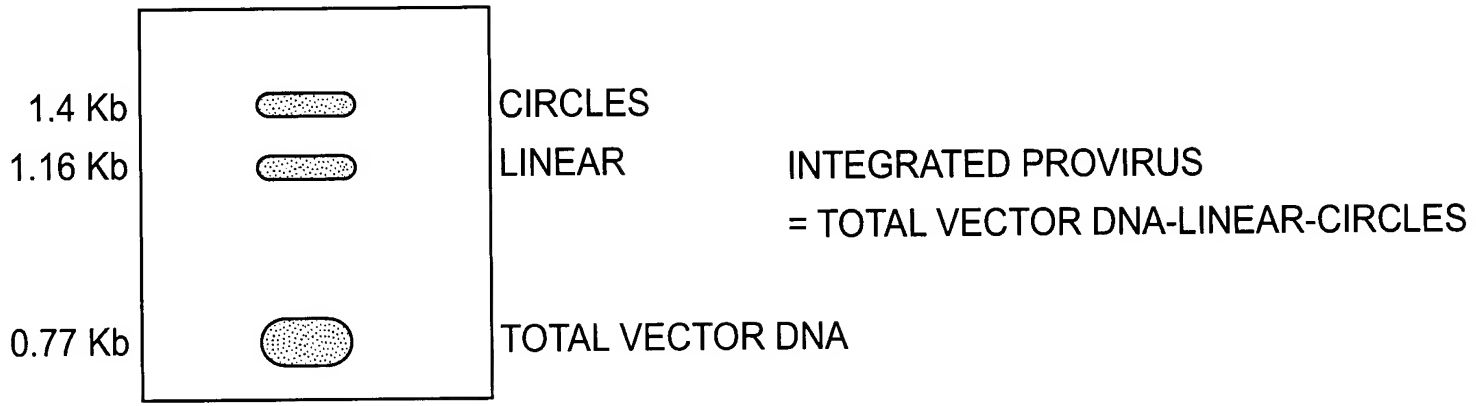


FIG. 8B

ANALYSIS OF NUCLEAR IMPORT OF VECTOR DNA

FIG. 9A

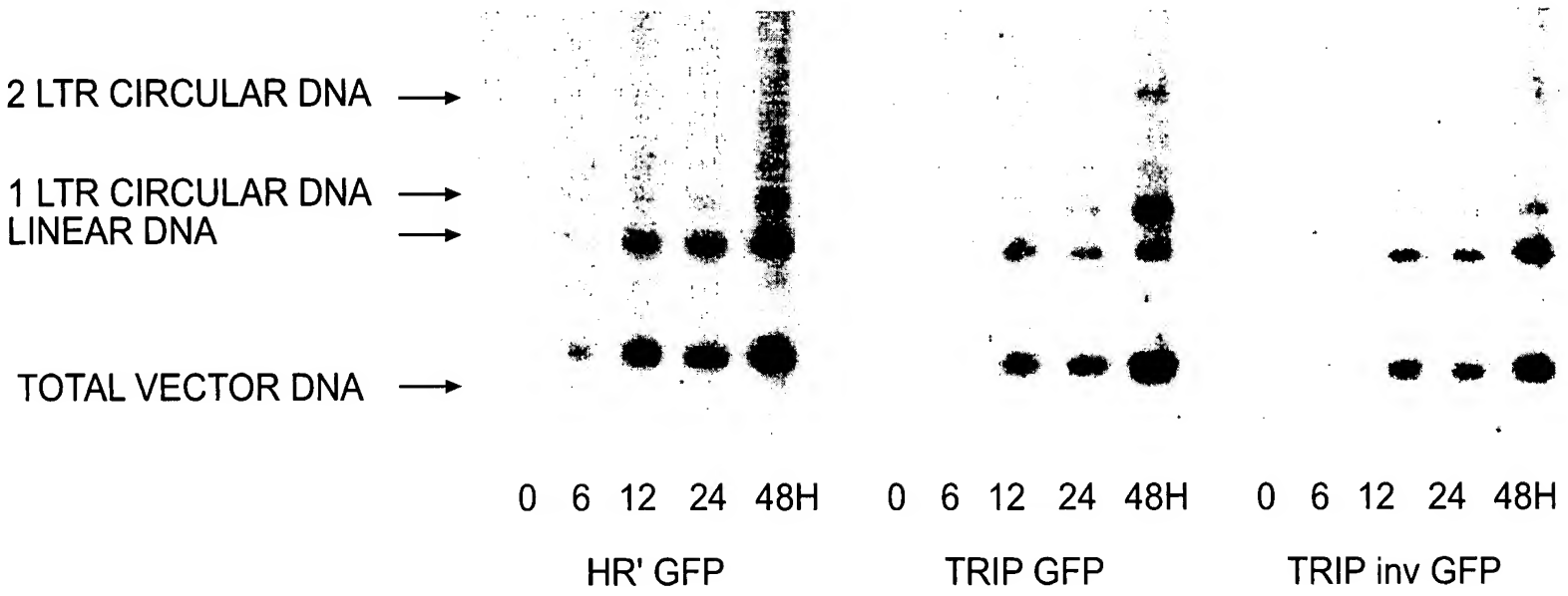


FIG. 9B

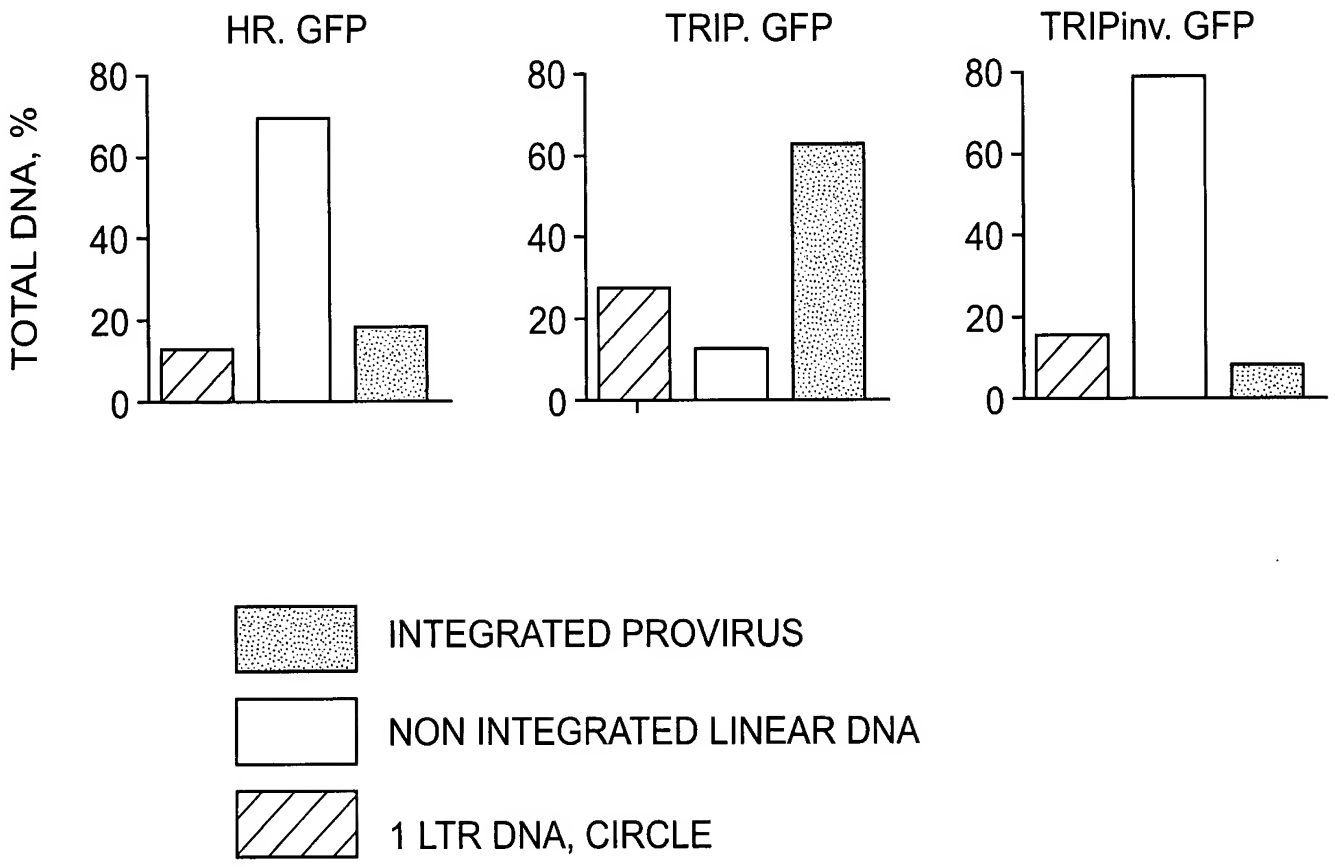
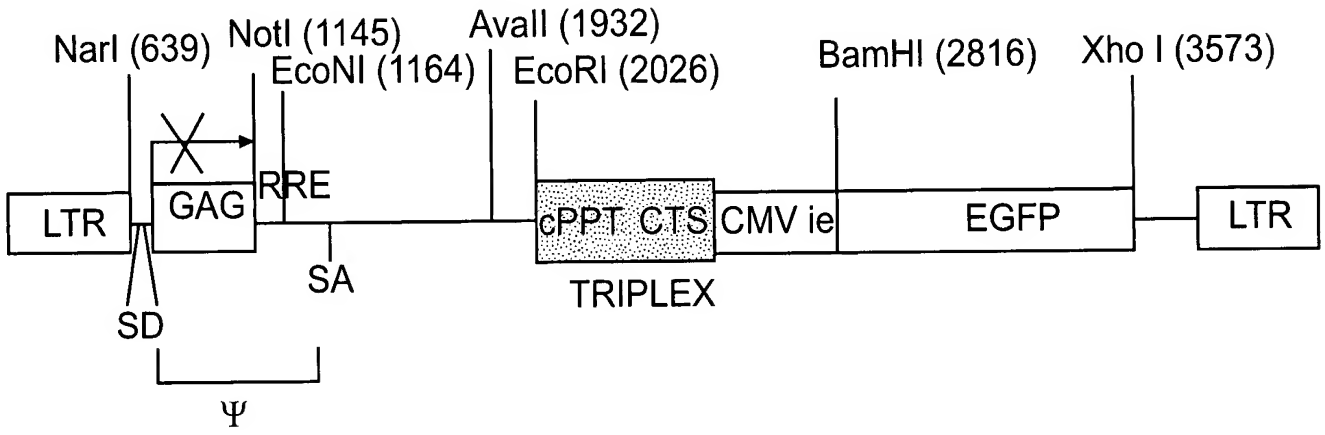

HR. GFP
TRIP. GFP
TRIPinv. GFP
TOTAL DNA, %
80
60
40
20
0
INTEGRATED PROVIRUS
NON INTEGRATED LINEAR DNA
1 LTR DNA, CIRCLE

FIG. 9C



HIV A TRIPLEX VECTOR: TRIP-EGFP

FIG. 10

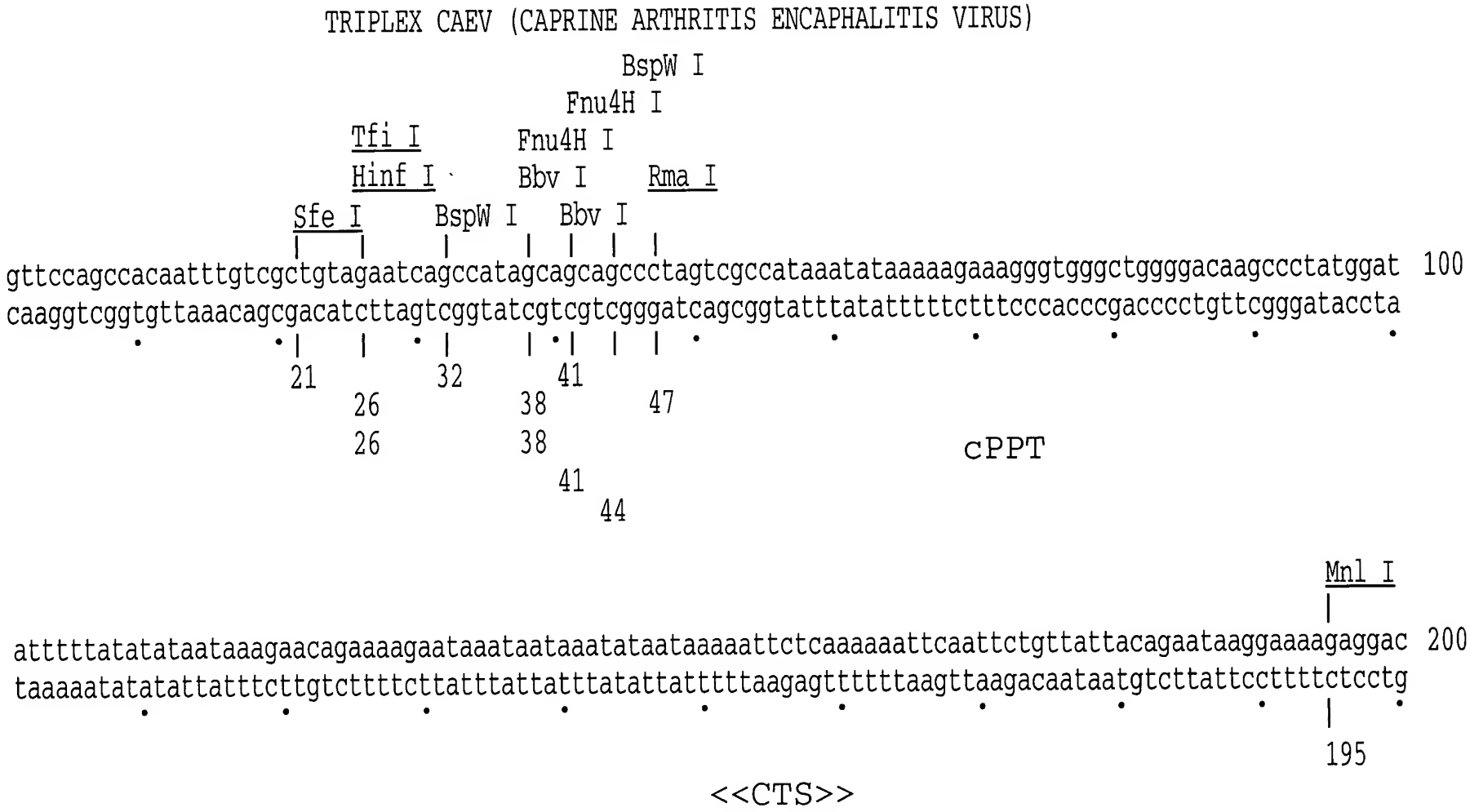

TRIPLEX CAEV (CAPRINE ARTHRITIS ENCAPHALITIS VIRUS)
BspW I
Fnu4H I
Tfi I
Fnu4H I
Hinf I
Bbv I
Rma I
Sfe I
BspW I
Bbv I
gttccagccacaatttgtcgctgtagaatcagccatagcagcagccctagtcgccataaatataaaaagaaagggtgggctggggacaagccctatggat 100
caaggtcggtgttaaacagcgacatcttagtcggtatcgtcgtcgggatcagcggtatttatatttttctttcccacccgacccctgttcgggatacctа
21
32
41
26
38
47
26
38
cPPT
41
44
Mnl I
attttatatataataaagaacagaaaagaataaataataaatataataaaaattctcaaaaaattcaattctgttattacagaataaggaaaagaggac 200
taaaaatatatattatttcttgtcttttcttatttattatttatattatttttaagagtttttaagttaagacaataatgtcttattccttttctcctg
195
<<CTS>>

FIG. 11A

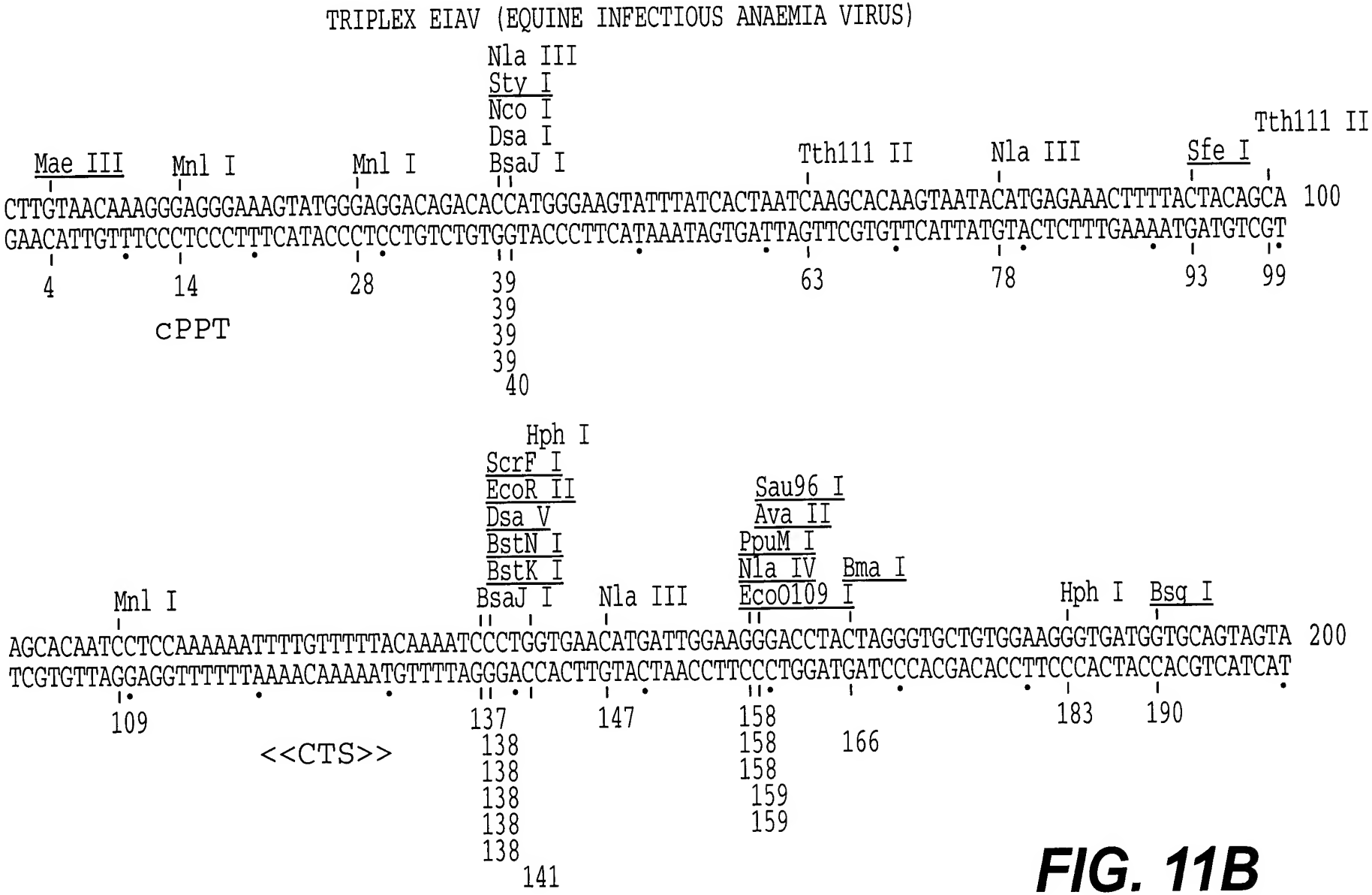

TRIPLEX EIAV (EQUINE INFECTIOUS ANAEMIA VIRUS)
Nla III
Sty I
Nco I
Dsa I
BsaJ I
Tth111 II
Tth111 II
Nla III
Sfe I
Mae III
Mnl I
Mnl I
CTTGTAACAAAGGGAGGGAAAGTATGGGAGGACAGACACCATGGGAAGTATTTATCACTAATCAAGCACAAGTAATACATGAGAAACTTTTACTACAGCA 100
GAACATTGTTTCCCTCCCTTTCATACCCTCCTGTCTGTGGTACCCTTCATAAATAGTGATTAGTTCGTGTTCATTATGTACTCTTTGAAAATGATGTCGT
4
14
28
39
39
39
39
40
63
78
93
99
cPPT
Hph I
ScrF I
EcoR II
Dsa V
BstN I
BstK I
Sau96 I
Ava II
PpuM I
Nla IV
Bma I
Mnl I
BsaJ I
Nla III
EcoO109 I
Hph I
Bsg I
AGCACAATCCTCCAAAAAATTTTGTTTTTACAAAATCCCTGGTGAACATGATTGGAAGGGACCTACTAGGGTGCTGTGGAAGGGTGATGGTGCAGTAGTA 200
TCGTGTTAGGAGGTTTTTTAAAACAAAAATGTTTTAGGGACCACTTGTACTAACCTTCCCTGGATGATCCCACGACACCTTCCCACTACCACGTCATCAT
109
137
138
138
138
138
138
141
147
158
158
158
159
159
166
183
190
<<CTS>>

FIG. 11B

TRIPLEX VISNA

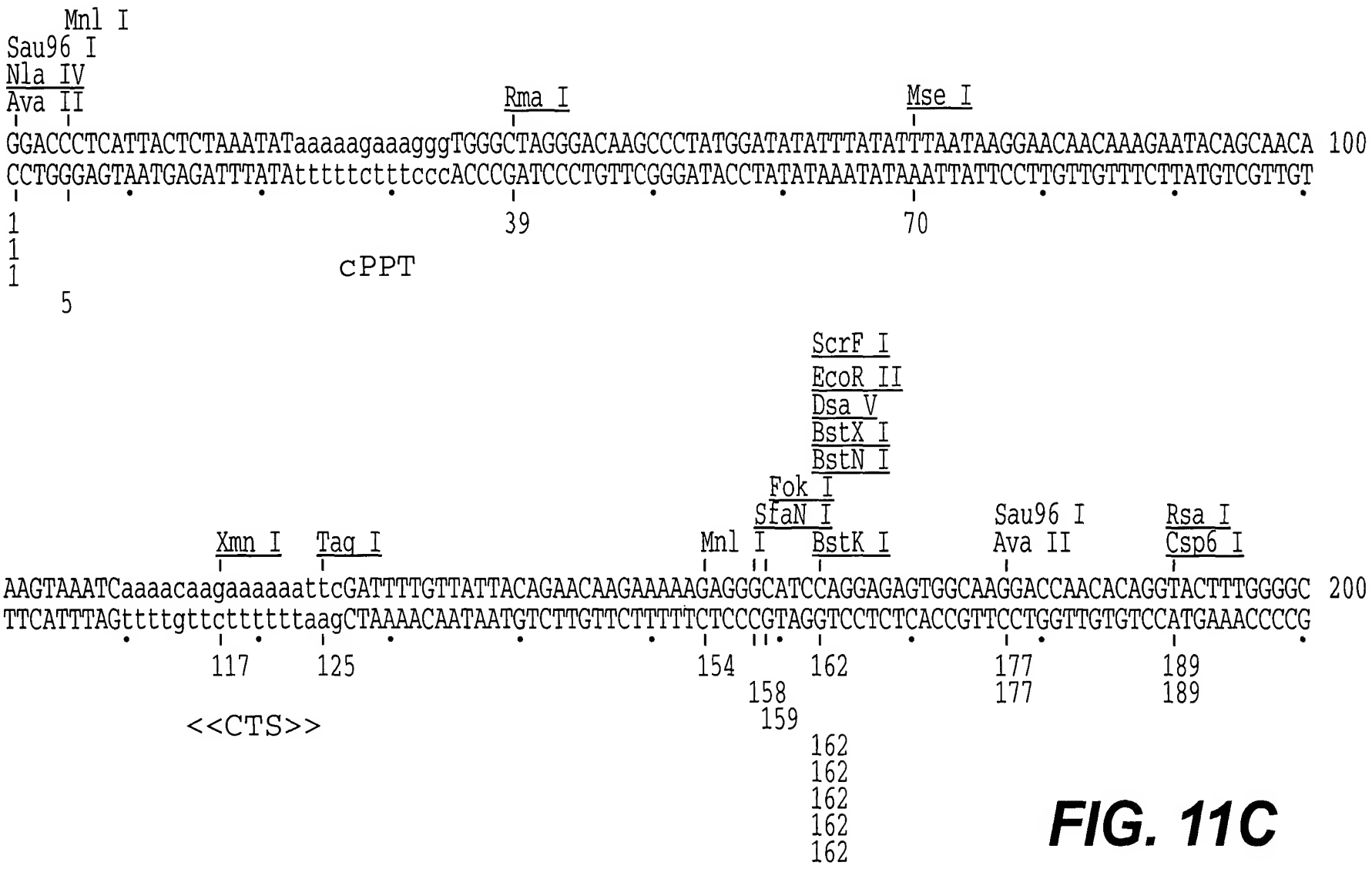


FIG. 11C

TRIPLEX SIV_{AGM} (SIMIAN IMMUNODEFICIENCY VIRUS)

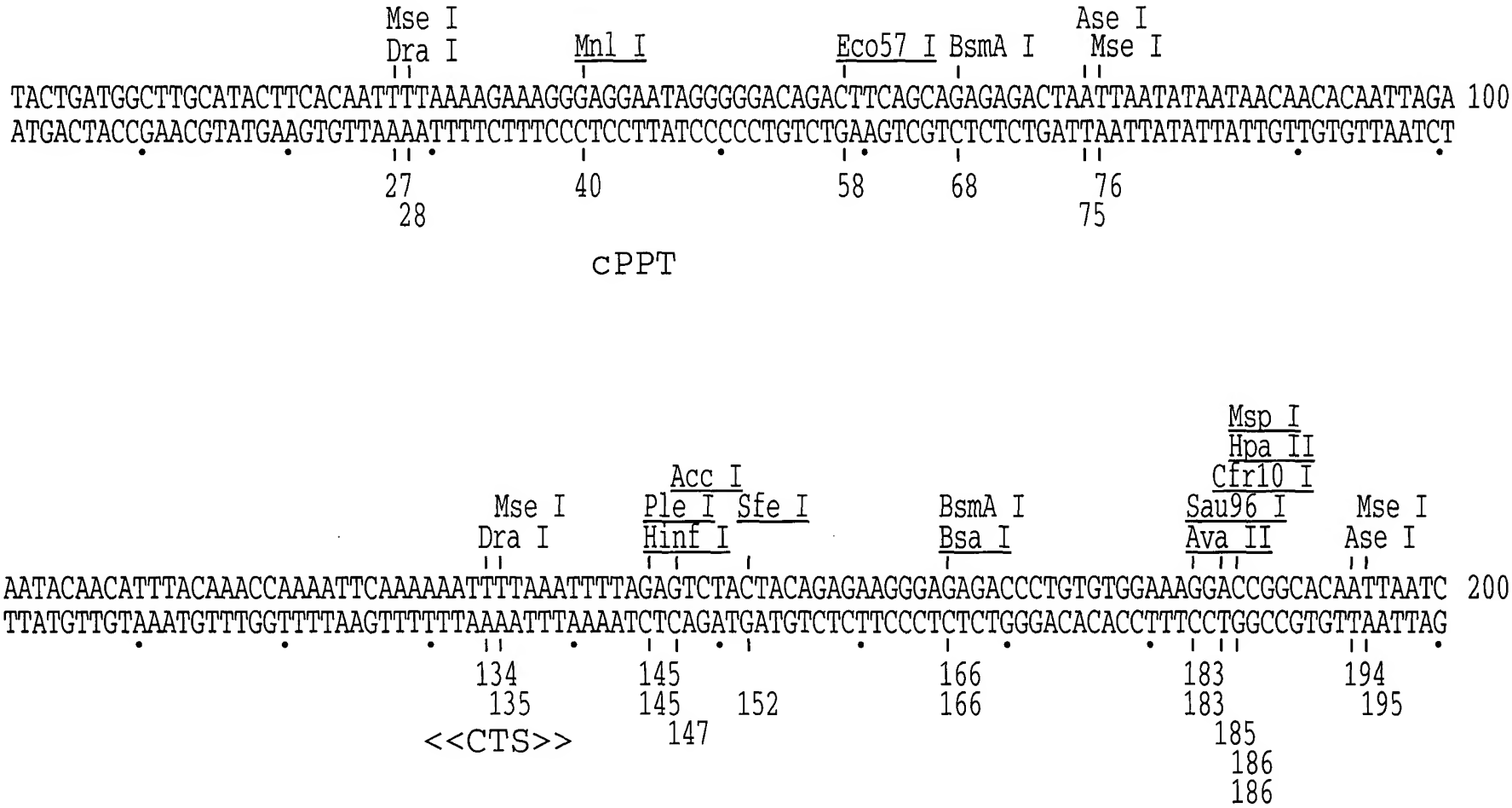


FIG. 11D

TRIPLEX HIV-2 RID (HUMAN IMMUNODEFICIENCY VIRUS)

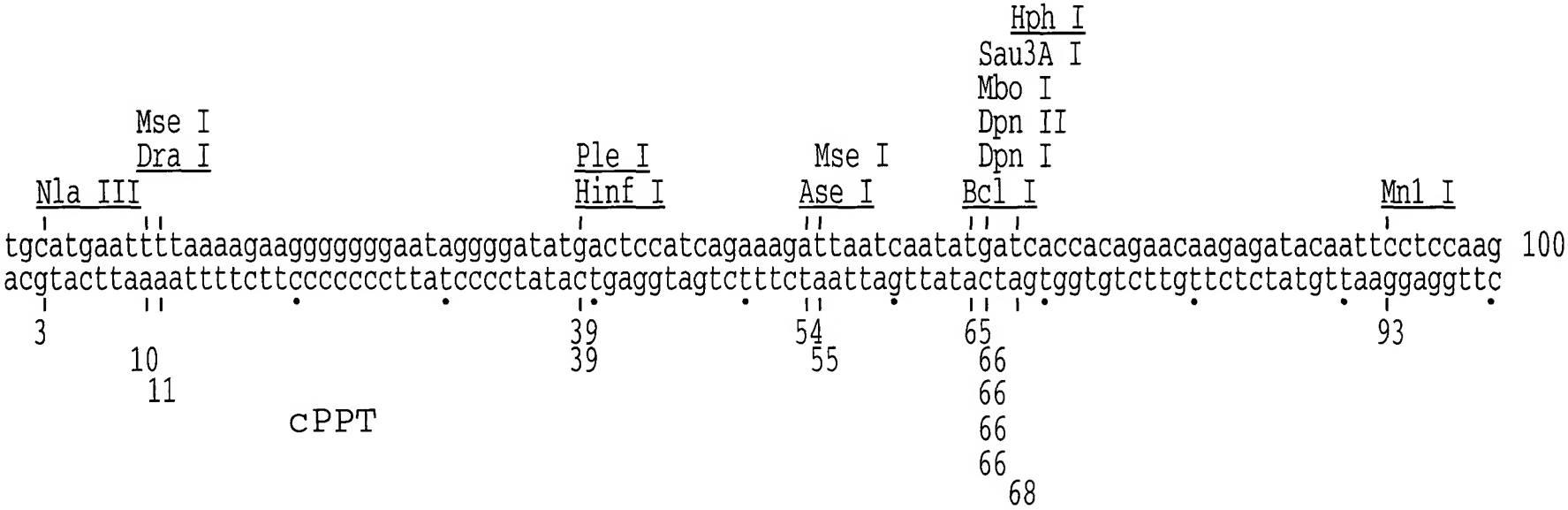


FIG. 11E

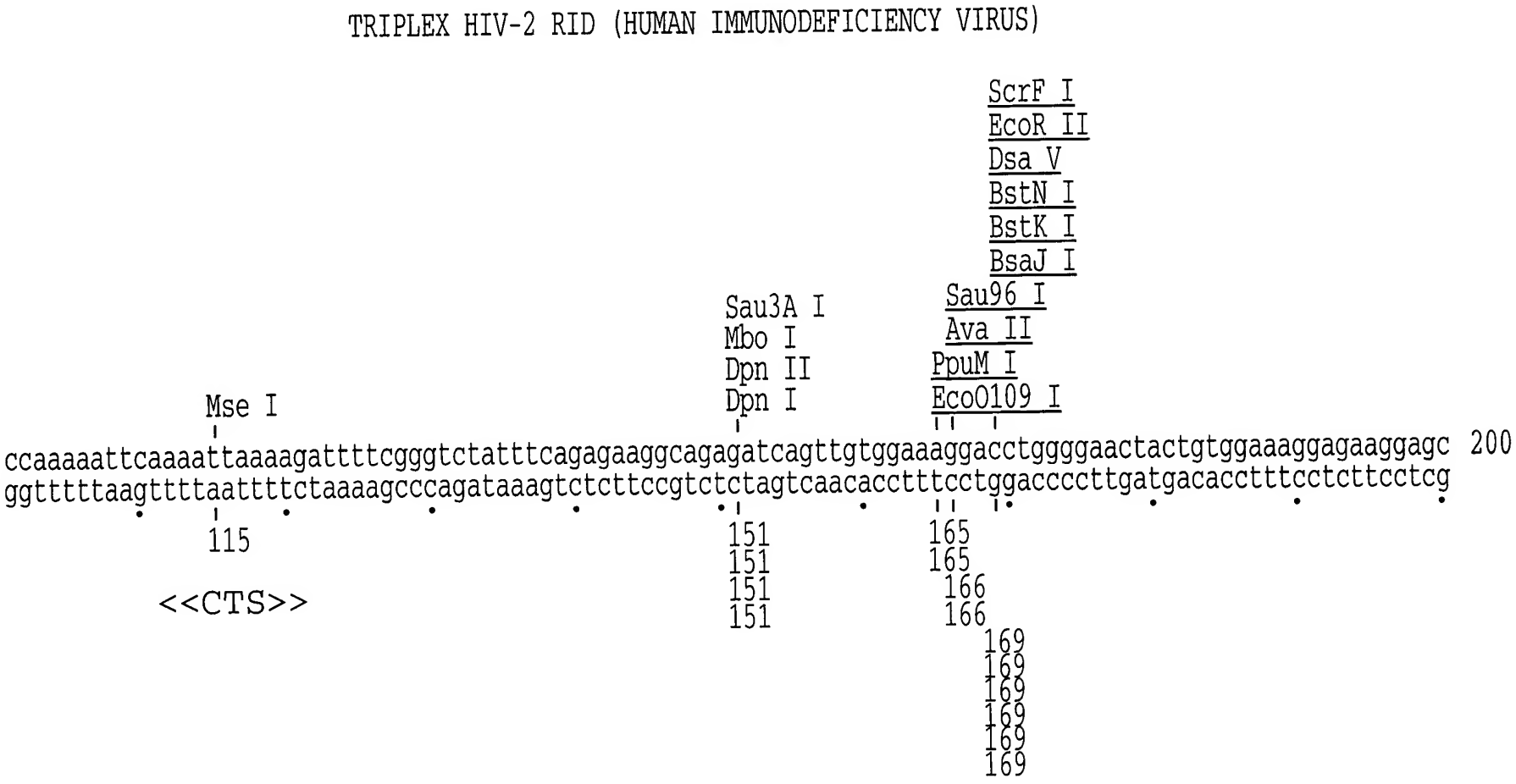

TRIPLEX HIV-2 RID (HUMAN IMMUNODEFICIENCY VIRUS)
ScrF I
EcoR II
Dsa V
BstN I
BstK I
BsaJ I
Sau96 I
Ava II
PpuM I
Eco0109 I
Sau3A I
Mbo I
Dpn II
Dpn I
Mse I
ccaaaaattcaaaattaaaagattttcgggtctatttcagagaaggcagagatcagttgtggaaaggacctggggaactactgtggaaaggagaaggagc 200
ggtttttaagttttaattttctaaaagcccagataaagtctcttccgtctctagtcaacacctttcctggacccctgatgacacctttcctcttcctcg
115
151
151
151
151
165
165
166
166
169
169
169
169
169
169
<<CTS>>

FIG. 11E (cont)

TRIPLEX HIV-1 LAI

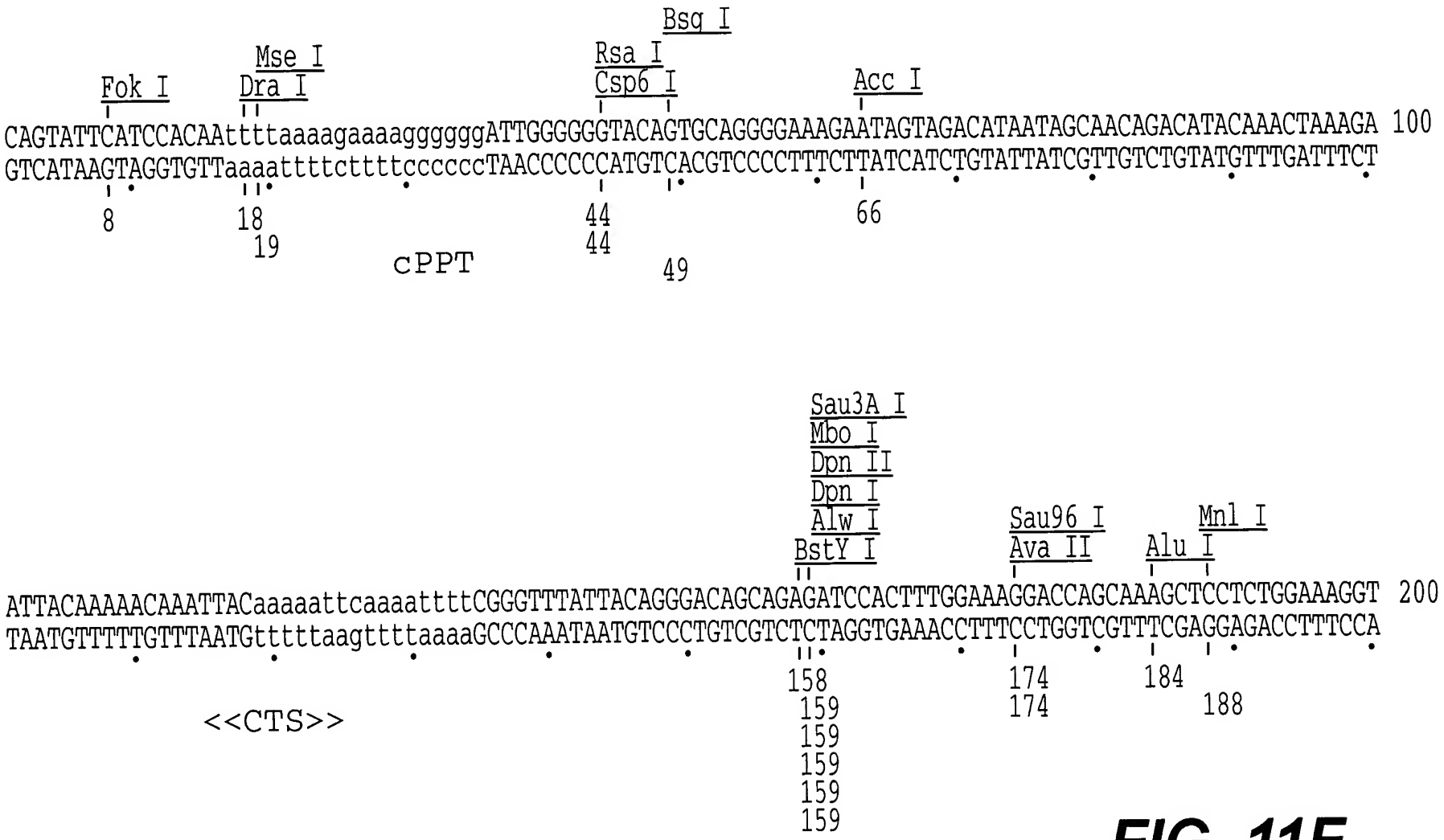
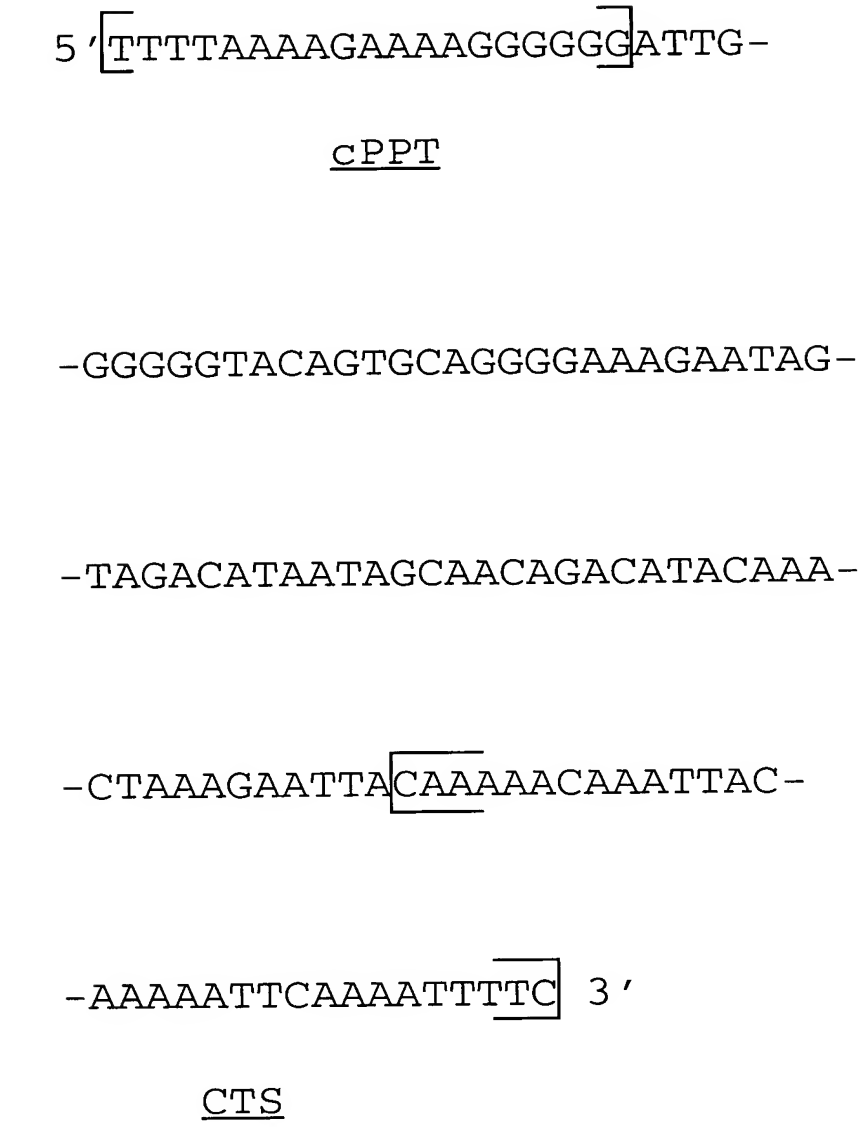


FIG. 11F



TRIPLEX DNA REGION OF HIV-1 VIRUS

FIG. 11G

ALIGNMENT OF cPPT AND 3'PPT SEQUENCES
IN SOME LENTIVIRUSES

3' PPT	AAAAGAAAAGGGGGG	*HIV-1*
CENTRAL PPT	**********	
	AAAACAAGGGGGGG	*HIV-2 ROD*
	****G*********	
	AAAAGAAAAGGGGGG	*SIV mac & HIV-2 NIH-Z*
	*******GG**A**A	
	AAAAGAAAAGGGAGG	*SIVagm*
	********G**AG*A	
	AAAAAGAAAAAAGAAAGGGTGG	*VISNA*
	T*T*******	
	AAAAATAAAAAAAGAAAGGGTG	*CAEV*
	T*******	
	AACAAGGGGGGAA	*EIAV*
	AGG*A*A**	

FIG. 11H

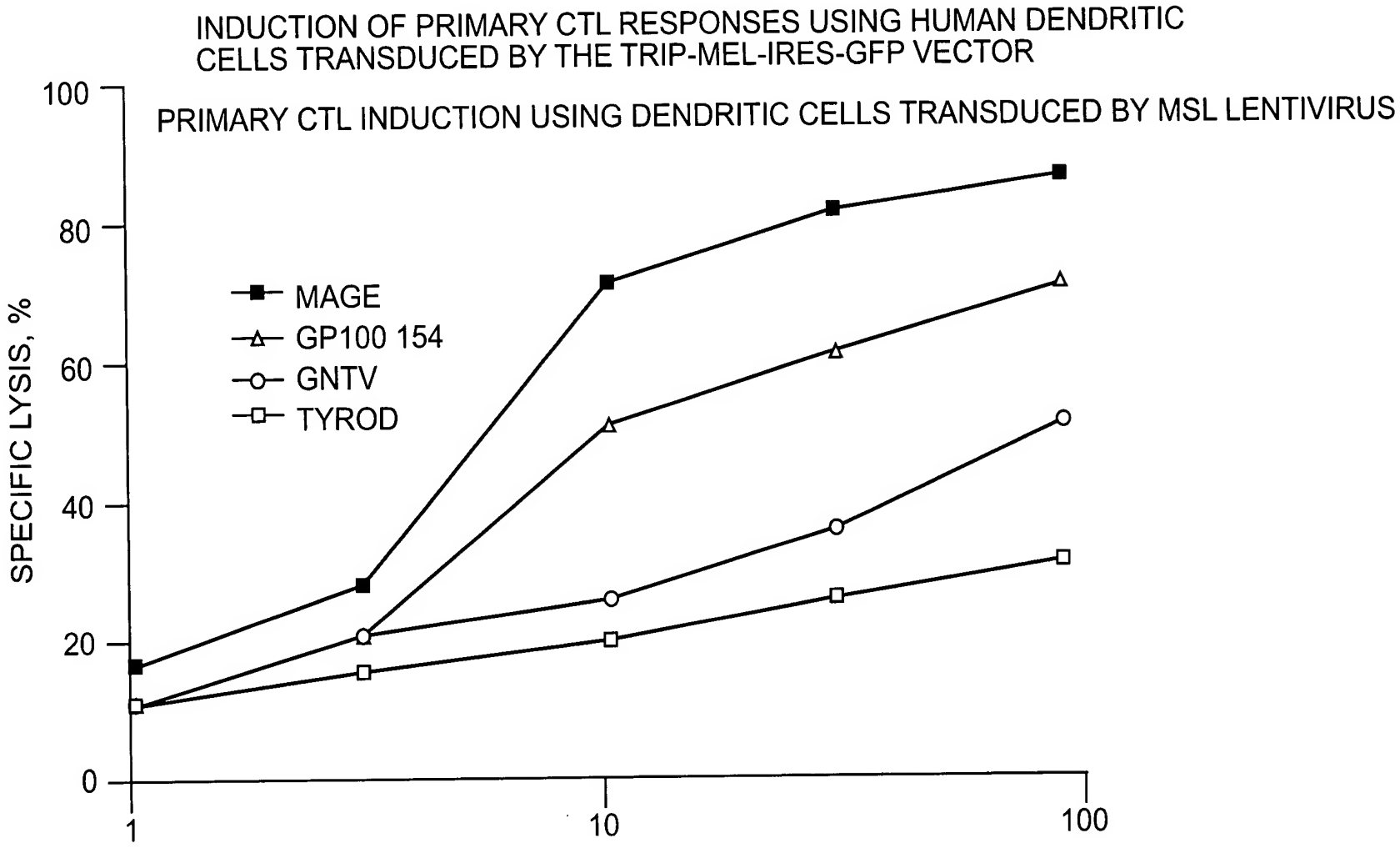
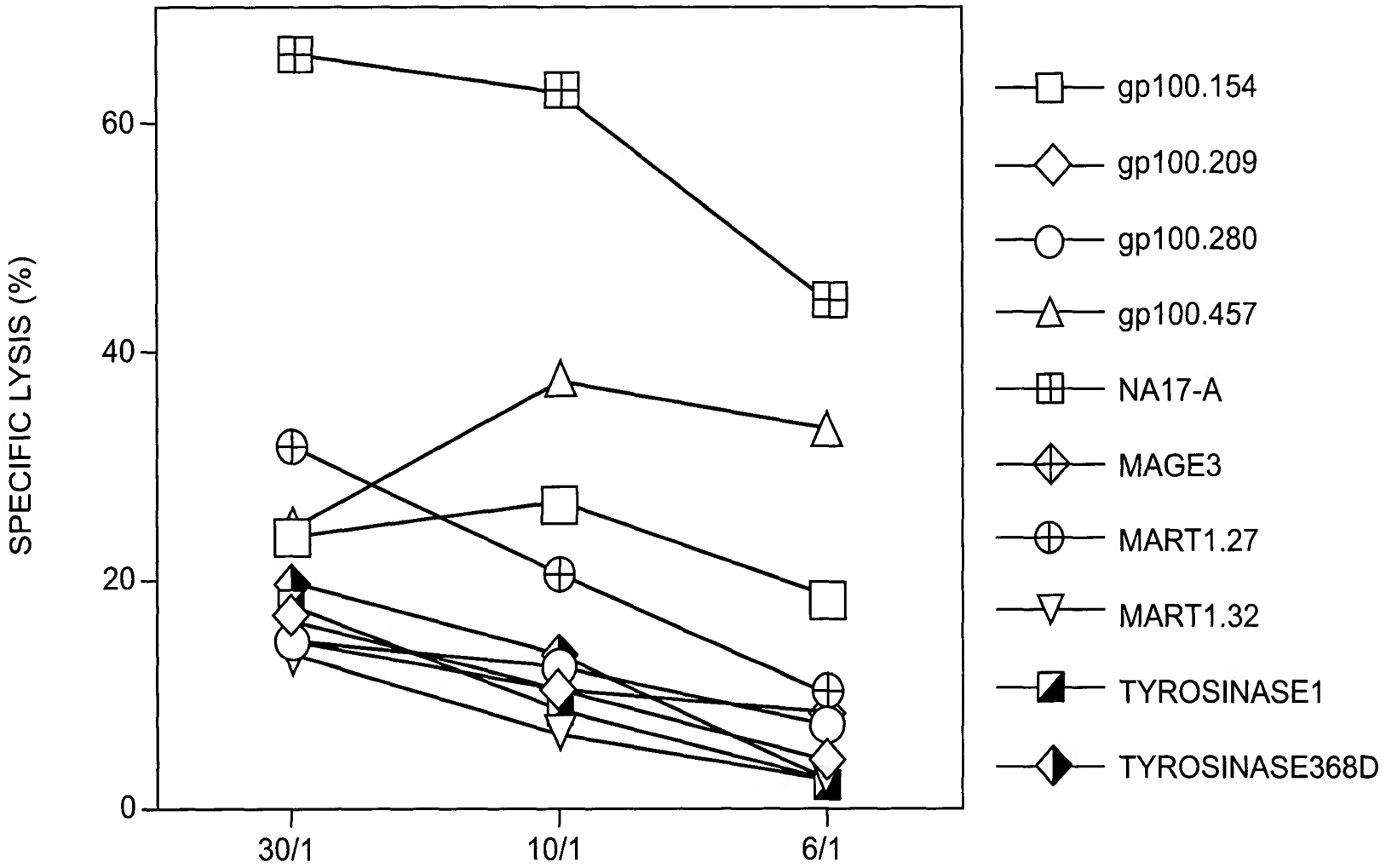

INDUCTION OF PRIMARY CTL RESPONSES USING HUMAN DENDRITIC CELLS TRANSDUCED BY THE TRIP-MEL-IRES-GFP VECTOR
PRIMARY CTL INDUCTION USING DENDRITIC CELLS TRANSDUCED BY MSL LENTIVIRUS
SPECIFIC LYSIS, %
100
80
60
40
20
0
1
10
100
MAGE
GP100 154
GNTV
TYROD

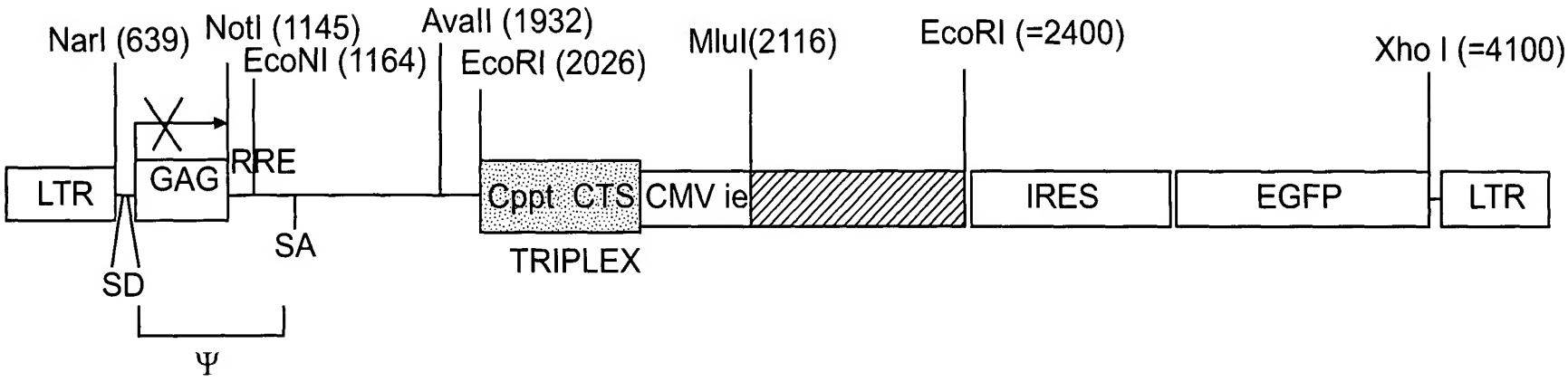
FIG. 12



RESULTS REPRESENTING THE CYTOTOXIC RESPONSE AFTER IMMUNIZATION (INTRAPERITONEAL) OF HHD MICE BY THE TRIP-MEL-IRES-GFP VECTOR

FIG. 13

RESTRICTION MAP OF pTRIP.MEL-IRES-GFP



SPECIFIC MELANOMA CTL POLYEPITOPIC SEQUENCE

SOURCE: CHARNEAU
HOST: JM109

FIG. 14

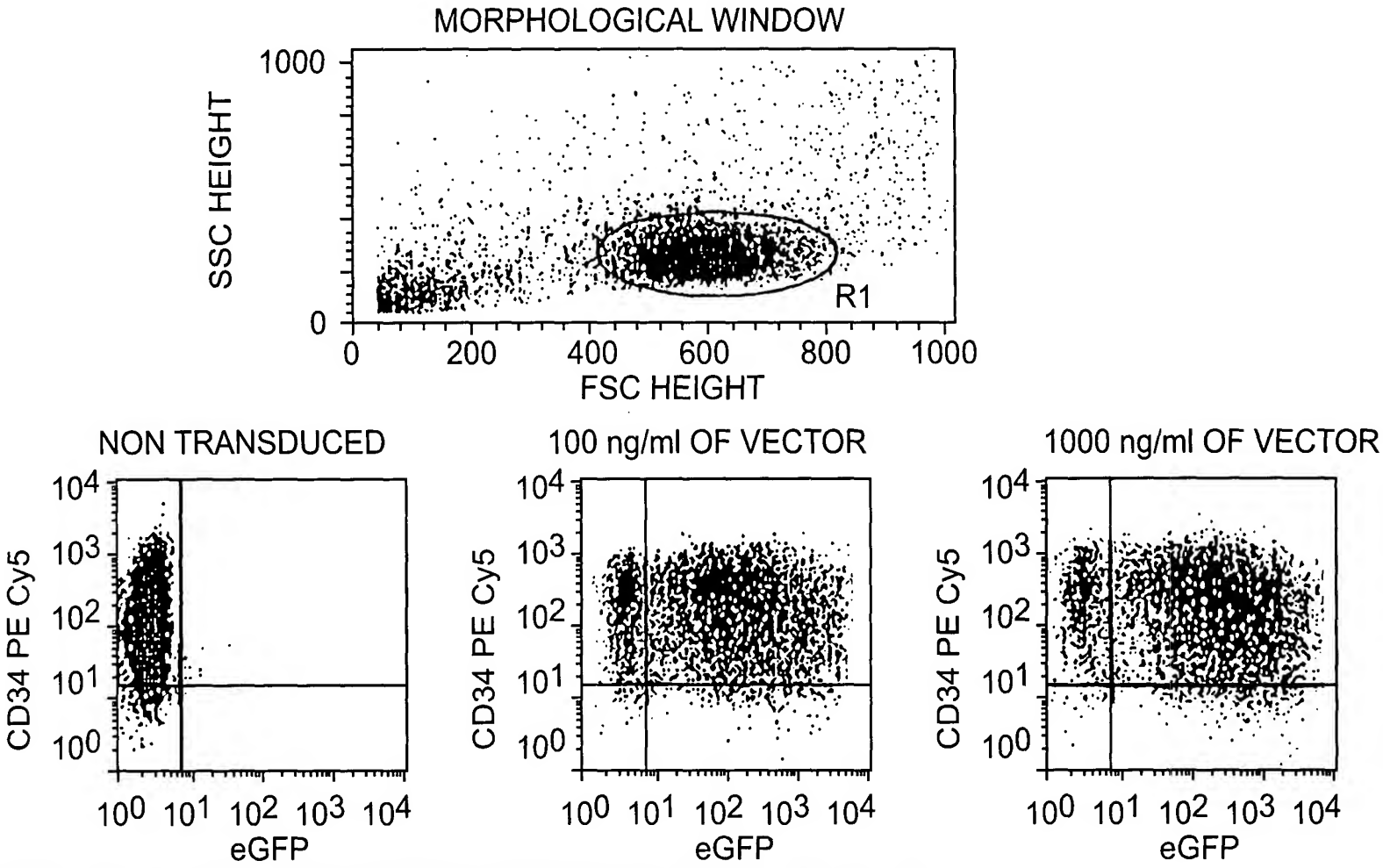
EPITOPIC PEPTIDES INCLUDED IN MELANOMA POLYEPITOPE

MELANOMA PEPTIDE		SEQUENCE	REFERENCE	
gp100	154-162	KTWGQYWQV	KAWAKAMI, Y. ET AL.	J.IMMUNOL.1995.154:3961-8.
	209-217	ITDQVPFSV	KAWAKAMI, Y. ET AL.	J.IMMUNOL.1995.154:3961-8.
	280-288	YLEPGPVTA	COX, AL. ET AL.	SCIENCE.1994.264:716-9.
	457-466	LLDGTATLRL	KAWAKAMI, Y. ET AL.	J.IMMUNOL.1995.154:3961-8.
MART-1	27-35	AAGIGILTV	KAWAKAMI, Y. ET AL.	J.IMMUNOL.1995.154:3961-8.
	32-40	ILTVILGVL	CASTELLI, C. ET AL.	J.EXP.MED.1995.181:363-8.
TYROSINASE	1-9	MLLAVLYCL	WOLFEL, T. ET AL.	EUR.J.IMMUNOL.1994.24:759-64.
	368-376-D	YMDGTMSQV	MOSSE, CA. ET AL.	J.EXP.MED.1998.187:37-48.
GnT-V/NA17-A	nt38-64[b]	VLPDVFIRC	GUILLOUX, Y. ET AL.	J.EXP.MED.1996.183:1173-83.
MAGE-3	271-279	FLWGPRALV	VAN DER BRUGGEN, P. ET AL.	EUR.J.IMMUNOL.1994.24:3038-43.

AMINO ACID SEQUENCE OF MELANOMA POLYPITOPE

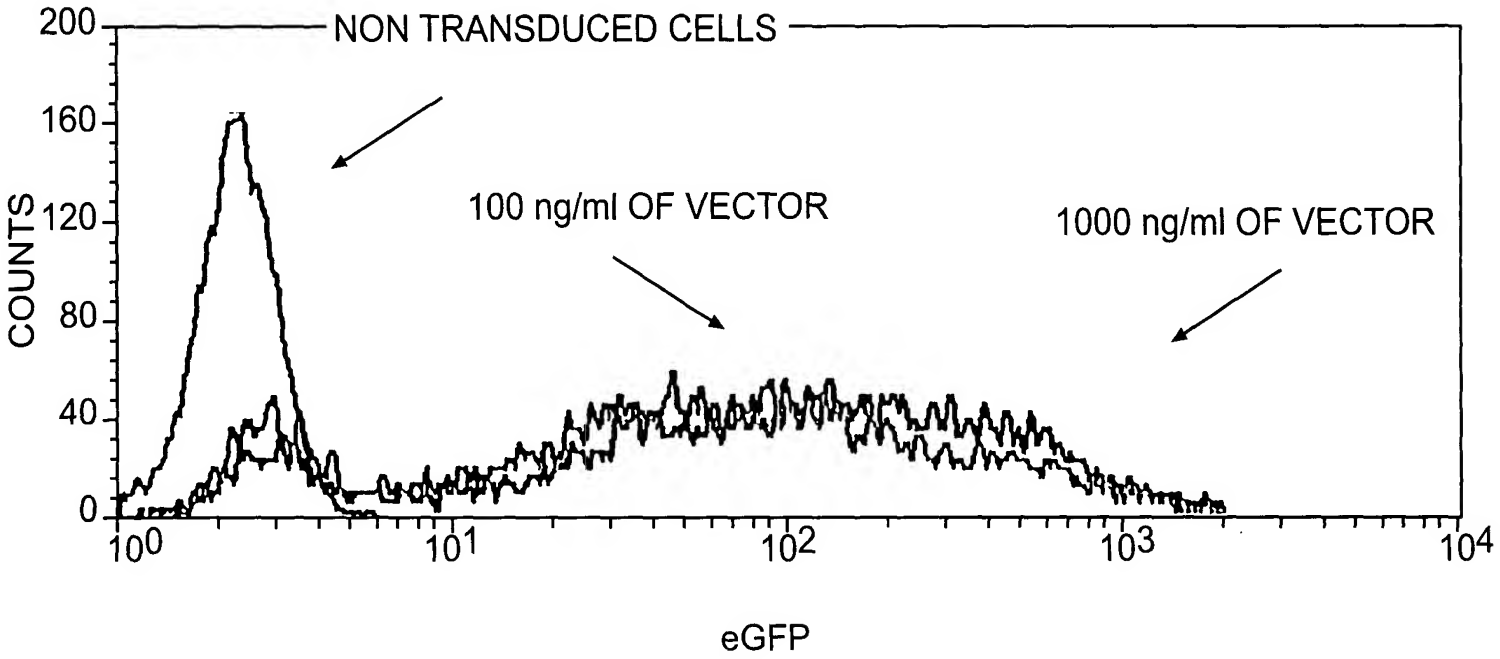
AAGIGILTVFLWGPRALVMLLAVLYCLLLDGTATLRLKTWGQYWQVYMDGTMSQVITDQVPFSVYLEPGPVTAILTVILGVLVLPDVFIRCV

FIG. 15



VERY HIGH EFFICIENCY TRANSDUCTION OF CD34+ STEM CELLS
BY TRIPLEX HIV A VECTORS
ANALYSIS ON POST TRANSDUCTION DAY 5

FIG. 16A



VERY HIGH EFFICIENCY TRANSDUCTION OF CD34+ STEM CELLS
BY TRIPLEX HIV A VECTORS
ANALYSIS ON POST TRANSDUCTION DAY 5

FIG. 16B